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October 26, 2004

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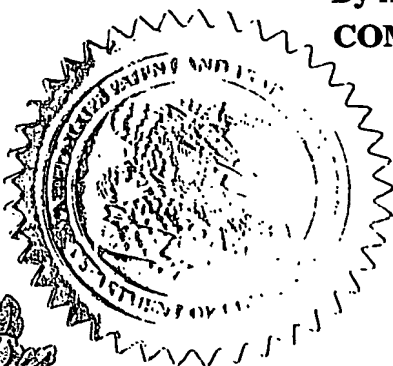
APPLICATION NUMBER: 60/491,702

FILING DATE: August 01, 2003

PRIORITY DOCUMENT

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PTO/SB/16 (10-01)

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label No. ER 430763435 US (08/01/03)

15535 U.S. PTO
60/491702
08/01/03

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
James		Johnson		Delaware, Ohio, U.S.A.	
<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
Tamper Evident Fitment Assembly					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input checked="" type="checkbox"/> Customer Number OR		501447 Type Customer Number Here		<div style="border: 1px solid black; padding: 5px; text-align: center;">*501447* PATENT TRADEMARK OFFICE</div>	
<input type="checkbox"/> Firm or Individual Name					
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Country		Telephone		Fax	
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages		11		<input type="checkbox"/> CD(s), Number	
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets		8		<input type="checkbox"/> Other (specify)	
<input checked="" type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees					
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 501447					
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FILING FEE AMOUNT (\$) \$160.00					
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<input checked="" type="checkbox"/> No.					
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Respectfully submitted,

SIGNATURE

Date 08/01/03

TYPED or PRINTED NAME Thomas R. Mancini

REGISTRATION NO. 50,157

(If appropriate)

TELEPHONE (302) 984-6127

Docket Number 26090-030

PROVISIONAL APPLICATION COVER SHEET
Additional Page

PTO/SB/16 (10-01)

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**FEE TRANSMITTAL
for FY 2003**

Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$) 160**Complete if Known**

Application Number	Unknown
Filing Date	August 1, 2003
First Named Inventor	James Johnson
Examiner Name	Unknown
Group / Art Unit	Unknown
Attorney Docket No.	26090-030

METHOD OF PAYMENT (check all that apply)		FEE CALCULATION (continued)																																																																																																																																																																																			
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ADDITIONAL FEES <table border="1"> <thead> <tr> <th colspan="2">Large Entity</th> <th colspan="2">Small Entity</th> <th rowspan="2">Fee Description</th> <th rowspan="2">Fee Paid</th> </tr> <tr> <th>Fee Code</th> <th>Fee (\$)</th> <th>Fee Code</th> <th>Fee (\$)</th> </tr> </thead> <tbody> <tr><td>105</td><td>130</td><td>205</td><td>65</td><td>Surcharge - late filing fee or oath</td><td></td></tr> <tr><td>127</td><td>50</td><td>227</td><td>25</td><td>Surcharge - late provisional filing fee or cover sheet</td><td></td></tr> <tr><td>139</td><td>130</td><td>139</td><td>130</td><td>Non-English specification</td><td></td></tr> <tr><td>147</td><td>2,520</td><td>147</td><td>2,520</td><td>For filing a request for reexamination</td><td></td></tr> <tr><td>112</td><td>920*</td><td>112</td><td>920*</td><td>Requesting publication of SIR prior to Examiner action</td><td></td></tr> <tr><td>113</td><td>1,840*</td><td>113</td><td>1,840*</td><td>Requesting publication of SIR after Examiner action</td><td></td></tr> <tr><td>115</td><td>110</td><td>215</td><td>55</td><td>Extension for reply within first month</td><td></td></tr> <tr><td>116</td><td>400</td><td>216</td><td>200</td><td>Extension for reply within second month</td><td></td></tr> <tr><td>117</td><td>820</td><td>217</td><td>460</td><td>Extension for reply within third month</td><td></td></tr> <tr><td>118</td><td>1,440</td><td>218</td><td>720</td><td>Extension for reply within fourth month</td><td></td></tr> <tr><td>128</td><td>1,960</td><td>228</td><td>980</td><td>Extension for reply within fifth month</td><td></td></tr> <tr><td>119</td><td>320</td><td>219</td><td>160</td><td>Notice of Appeal</td><td></td></tr> <tr><td>120</td><td>320</td><td>220</td><td>160</td><td>Filing a brief in support of an appeal</td><td></td></tr> <tr><td>121</td><td>280</td><td>221</td><td>140</td><td>Request for oral hearing</td><td></td></tr> <tr><td>138</td><td>1,510</td><td>138</td><td>1,510</td><td>Petition to institute a public use proceeding</td><td></td></tr> <tr><td>140</td><td>110</td><td>240</td><td>55</td><td>Petition to revive - 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SUBMITTED BY		Complete (if applicable)	
Name (Print/Type)	Thomas R. Mancini	Registration No. Attorney/Agent	50,157
Signature		Telephone	(302) 984-6137
		Date	August 1, 2003

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TAMPER EVIDENT FITMENT ASSEMBLY

Application No.: Unknown

Filing Date: August 1, 2003

First Named Inventor: James Johnson

Group Art Unit: Unknown

Examiner: Unknown

Attorney Docket: 26090-030

Provisional Patent Application

Application Data Sheet

Provisional Transmittal

Application - 11 pages

Drawings - 8 Sheets

Authorization to charge Deposit Account 501447

Postcards

TAMPER EVIDENT FITMENT ASSEMBLY

FIELD OF THE INVENTION

[1001] The present invention provides a tamper evident fitment assembly and more particularly a tamper evident fitment assembly for use in aseptic applications.

BACKGROUND OF THE INVENTION

[0002] Many systems are used for filling and dispensing liquids and other flowable products from a package under aseptic conditions. Generally these packages are made from a plastic material and have at least one spout through which the liquid or flowable material is filled and dispensed.

[0003] Generally it is preferred that these packages be kept under aseptic conditions throughout the filling process and prior to dispensing of the liquid or flowable product. Such conditions may be required if the flowable product will readily undergo deterioration or degradation when exposed to a non-aseptic environment.

[0004] Generally the systems used for packaging under aseptic conditions involve the production of the bag and fitment at one facility and then transporting them to a second facility for filling during which the bag is then placed in an aseptic environment.

[0005] It is preferable to provide a bag and fitment that may be kept under aseptic conditions from manufacture through to filling. However, since the bags are usually shipped between facilities it may be difficult to maintain such aseptic conditions throughout transportation.

[0006] It is therefore desirable to provide a tamper evident fitment assembly for use in aseptic applications that address some of the shortcomings discussed above.

SUMMARY OF THE INVENTION

[0007] The present invention provides a tamper evident assembly that includes a collar portion, and a cap with a tamper indicating band, that may be assembled into a precap position and attached to a container. The container may then be placed under sterile/aseptic conditions and transported to a filling facility. During transportation the

precap position will maintain the container in an aseptic environment. When filling of the container is required the container is placed in a filling station which is maintained under aseptic conditions and the cap is removed from the collar portion. The container is then filled and the cap is placed back on the collar portion in a full cap position. Removal of the cap from the full cap position will separate the tamper indicating band from the cap thereby indicating that the seal on the container has been broken.

[0008] The present invention provides a tamper evident assembly for use with a fluid dispensing container for flowable material. The assembly comprises an annular flange for attachment to a container and a spout projecting upwardly from the flange and having an upper end and a lower end, and defining a dispensing passage therethrough and having at least one external annular rib. The assembly further comprises a cap having a top with an external depending skirt and a tamper indicating band releasably attached to the skirt. The cap further including an internal skirt depending from the top and spaced inwardly from the external skirt and operable to be received within the fluid passage to provide a seal between the cap and the spout. The assembly has a first position in which the cap is received on the upper end of the spout with the tamper indicating band abutting the external rib and the internal skirt being received within the passage and providing a seal therebetween, and a second position in which the cap is located on the lower end of the spout with the external rib located between the external skirt and the tamper indicating band and the upper end of the spout located adjacent the top of the cap, the internal skirt being received within the passage and providing a seal therebetween.

[0009] The present invention further provides a tamper evident assembly for use with a fluid dispensing container for flowable material, comprising an annular flange for attachment to a container, a spout projecting upwardly from the flange and having an upper end and a lower end, the spout defining a dispensing passage therethrough and a cap sized to be received on the spout and having a tamper indicating band releasably attached thereto. The assembly has a first position in which the cap and the tamper indicating band are received on the upper end of the spout and a seal is provided between the cap and the spout and from which when the cap is removed the tamper indicating band remains attached to the cap, and a second position in which the cap and the tamper indicating band are located adjacent the lower end of the spout and a seal is provided between the cap and the spout and from which when the cap is removed the tamper

indicating band detaches from the cap and remains on the spout, thereby providing evidence that the assembly has been tampered with.

DESCRIPTION OF THE DRAWINGS

[0010] The present invention is better understood with reference to the attached description and to the following Figures, wherein:

[0011] Figure 1A illustrates a perspective view of a preferred embodiment of the tamper evident fitment assembly of the present invention in a ready to assemble position.

[0012] Figure 1B illustrates a side partial cross sectional view of the tamper evident fitment assembly of Figure 1A;

[0013] Figure 2A illustrates a perspective view of the tamper evident fitment assembly of Figure 1A in the precap position;

[0014] Figure 2B illustrates a side partial cross sectional view of the tamper evident fitment assembly of Figure 2A;

[0015] Figure 3 illustrates a side partial cross sectional view of the tamper evident fitment assembly of Figure 1A in the filling position;

[0016] Figure 4A illustrates a perspective view of the tamper evident fitment assembly of Figure 1A in a full cap position;

[0017] Figure 4B illustrates a side partial cross sectional view of the tamper evident fitment assembly of Figure 4A; and

[0018] Figure 5 illustrates a side partial cross sectional view of the tamper evident fitment assembly of Figure 1 in a dispensing position.

DETAILED DESCRIPTION OF THE INVENTION

[0019] The tamper evident fitment assembly of the present invention will now be described with reference to Figures 1A through 5 in which a preferred embodiment of the tamper evident fitment assembly is indicated generally at numeral 10. The tamper evident fitment assembly 10 is connected to a container that is filled with flowable material, e.g.

liquids. It will be understood by a person skilled in the art that generally a container for such use is in the form of a pouch. As used herein, the term "*flowable* material" does not include gaseous materials, but encompasses materials which are *flowable* under gravity or may be pumped. Such materials include liquids, preferably foods, such as water, fruit juice, milk, oil; emulsions e.g. ice cream mix, soft margarine; pastes e.g. meat pastes, peanut butter; preserves e.g. jams, pie fillings, marmalade; jellies; doughs; ground meat e.g. sausage meat; powders e.g. gelatine powders, detergents; granular solids e.g. nuts, sugar, and like materials. The invention described herein is particularly useful for *flowable* foods.

[0020] The tamper evident fitment assembly 10 of the present invention may be used on a container that requires handling and filling in an aseptic environment. The description of the fitment assembly and its use will be described in such an environment. However, it will be understood by a person skilled in the art, that the use of the fitment assembly of the present invention is not limited to such a use and other applications fall within the scope of the invention.

[0021] The tamper evident fitment assembly 10 includes a cap 12 and a collar portion 13 having an annular flange 14 and a spout 16 projecting upwardly from the flange 14. The flange 14 is operable for attachment to a container, not shown. The attachment of the flange 14 to a container can be achieved many ways that will be known to a person skilled in the art. Examples of ways to attach the flange 14 to the fitment include, but are not limited to, heat sealing, welding and chemical bonding, e.g. adhesive. The cap 12 is sized to be received on the spout 16, and can be located on the spout 16 in several different positions in which hermetic sealing between the cap 12 and the spout 16 is maintained to provide an aseptic environment. The positions include an aseptic precap position and an aseptic full cap position, which will be described further below.

[0022] As can be seen more clearly in Figures 2A through 5 the spout 16 has an upper end 18 and a lower end 20 and defines a fluid passage 22 through the spout 16 between the upper end 18 and the lower end 20. When the flange 14 is attached to a container, flowable material can pass into and out of the container through the passage 22.

[0023] In the preferred embodiment, the spout 16 also includes a series of external handling rings 24. The handling rings 24 are operable to connect to different filling and dispensing apparatus. The size and location of each ring 24 may be adapted depending on the type of filler and/or dispenser the collar portion 13 is attached to. It will be understood by a person skilled in the art that the positioning and size of the rings 24 may be varied for optimizing the securing of the collar portion 13 to such apparatus. The spout 16 preferably includes two handling rings 24 however it will be understood by a person skilled in the art that the number may vary depending on the end use of the container and fitment assembly 10. The spout 16 may also include external threads 26 for connection of the spout 16 to a dispensing connector.

[0024] As described above, the cap 12 is sized to be received on the spout 16 and includes a top 26 with an external skirt 28 depending from the top 26 and a tamper indicating band 30 releasably attached to the external skirt 28 at the opposite end from the top 26. The external skirt 28 has an internal ledge 32 located adjacent the top 26 of the cap 12, distal from the tamper indicating band 30. The cap 12 further includes a cork 34, also referred to as an internal skirt, depending from the top and spaced inwardly from the external skirt 28. The cork 34 is sized to be received within the fluid passage 22 of the spout 16 to provide a seal between the cap 12 and the spout 16 when the cap 12 is received on the spout 16.

[0025] As can be seen in Figure 3, the internal skirt 34 is spaced from the external skirt 28 at a distance that is sized to allow the spout 16 to fit therebetween. The spacing is sufficient to allow the spout 16 to be placed between the internal skirt 34 and the external skirt 28 and to be held in place by a friction fit providing a seal therebetween that is sufficient to maintain the container in an aseptic environment when required.

[0026] As discussed above, the cap 12 includes a tamper indicating band 30 releasably attached to the external skirt 28. The tamper indicating band 30 is attached to the external skirt 28 by a series of frangible bridges 36. The frangible bridges 36 are integrally formed with the cap 12 and band 30. Located on the internal surface of the tamper indicating band 30 is a shoulder 38 that extends inwardly and is located at a distance from the external skirt 28. The distance between the shoulder 38 and the external skirt 28 is sized to receive at least a portion of the external rib 24 therebetween.

[0027] As can be seen in Figures 2A through 5, the cap 12 and the spout 16 have many possible positions during the use of the fitment 10. The positions of the cap 12 and the spout 16 will be discussed in order of the operation of the fitment beginning with a ready to assemble position to a dispensing position. In all of the positions discussed the spout 16 is attached to a container, not shown, by means that are known to a person skilled in the art.

[0028] Figure 1B illustrates the ready to assemble position in which the cap 12 is not yet placed on the spout 16. In this position the tamper indicating band 30 is connected to the external skirt 28 of the cap 12 by frangible bridges 36.

[0029] Turning to Figure 3, the precap position is shown. As can be seen, the cap 12 is received on the spout 16 with the tamper indicating band 30 being located adjacent the upper most external ring, indicated at 24a. The upper end 18 of the spout is located between the internal skirt 34 and the external skirt 28 and is located below and adjacent the internal ledge 32 of the external skirt 28. In this precap position the tamper indicating band 30 is connected to the external skirt 28 of the cap 12 by frangible bridges 36. The positioning of the internal skirt 34 within the passage 22 adjacent the internal ledge 32, will maintain an aseptic seal between the cap 12 and the spout 16.

[0030] In order to fill the container with the required flowable material the cap 12 must be removed from the spout 16 in order to allow for the flowable material to pass through the passage 22. The cap 12 is removed from the spout 16, as shown in Figure 4, while maintaining the connection between the tamper indicating band 30 and the external skirt 28 of the cap 12. The container may then be filled by means known by a person skilled in the art, described below.

[0031] Once the container has been filled the cap 12 is then placed back onto the spout 16. At this stage the cap 12 is generally not removed from the spout 16 until dispensing of the product from the container is required. Since any tampering with the container and fitment assembly 10 at this stage may contaminate the contents of the container it is desirable to show whether the fitment assembly 10 has been tampered with. Figure 5 illustrates the full cap position in which an aseptic environment for the fitment assembly 10 and the contents of the container may be maintained. If the cap 12 is

removed from the fitment assembly 10 when in the full cap position the tamper evident band 30 will separate, as described below, indicating that tampering has occurred.

[0032] When the cap 12 is placed on the spout 16 in the full cap position the cap 12 is moved further onto the spout 16 towards the flange 14 then in the previously described precap position, illustrated in Figure 3. In the full cap position, the cap 12 is positioned with the shoulder 38 of the tamper indicating band 30 located below the external rib 24a and the frangible bridges 36 are located adjacent the peripheral edge of the external rib 24a. In this position the upper end 18 of the spout 16 is located above the internal ledge 32 of the external skirt 28 on the cap 12. Similar to the precap position, in the full cap position, the location of the internal skirt 34 in the passage 22 creates a seal between the cap 12 and the spout 16 and provides an aseptic environment for the container and fitment assembly 10.

[0033] When the flowable material is required to be dispensed from the container the cap 12 must be removed from the spout 16. Figure 5 illustrates the cap 12 and spout 16 once the cap 12 has been removed from the spout 16. In this dispensing position, the cap 12 has been pulled away from the spout 16 in order to allow for the removal of material from the container. As the cap 12 is pulled away from the spout 16 the shoulder 38 will abut against the external rib 24a which will inhibit the upward movement of the shoulder 38 and thereby inhibit the removal of the tamper indicating band 30 from the spout 16. The force that is applied on the cap 12 to pull it away from the spout 16 while the shoulder 38 of the tamper indicating band 30 is retained beneath the external rib 24a will apply pressure to the frangible bridges 36. Once sufficient pressure/force has been applied to the cap 12 the frangible bridges 36 will sever and the tamper indicating band 30 will become detached from the cap 12. The cap 12 can then be removed and the material in the container dispensed. The tamper indicating band 30 will remain on the spout 16 beneath the external rib 24a and indicate to a user that the fitment assembly 10 has been tampered with. The tamper indicating band 30 may subsequently be removed if required by the user.

[0034] The assembly and use of the tamper evident fitment assembly 10 will now be briefly discussed. The collar portion 13 and cap 12 are manufactured separately by suitable means known in the art. After manufacture the collar portion 13 and cap 12 are

shipped to the container manufacturing location. The collar portion 13 is attached to the container, not shown, at flange 14 by suitable means known in the art. After attachment of the collar portion 13, the cap 12 is placed on the collar portion 13 in the precap position, described above. The container and fitment assembly 10 are irradiated, by suitable means known in the art, in order to create an aseptic environment in the container. The container with the fitment assembly 10 may then be shipped to a filling station. When filling of the container is required, the container is placed in a filling machine, which operates under aseptic conditions. Once in the filling machine a caper apparatus will remove the cap 12 from the precap position with the tamper indicating band 30 still attached to the cap 12. The filling machine will then fill the container with flowable material through the fluid passage 22 until the container is full. At this time, the cap 12 will be placed back onto the spout 16 and pushed into the full cap position. The container may then be removed from the filling machine and stored or shipped, as required. When the cap 12 is removed from the full cap position the tamper indicating band 30 will separate from the external skirt 28 thereby indicating that the fitment assembly 10 has been tampered with. The types of filling machines and the operation of such machines will be understood by a person of skill in the art.

[0035] Although the invention has been described in terms of a particular preferred embodiment thereof, the skilled practitioner will understand that variations may be made within the scope of the appended claims.

[0036] The fitment assembly 10 may be made from any suitable material known by a person skilled in the art. For example, the collar portion 13 and the cap 12 may be made from any suitable plastic, in particular any plastic suitable for injection molding, which will be known by a person skilled in the art. Examples include, but are not limited to, linear low density polyethylene and polypropylene.

[0037] It will also be understood by a person skilled in the art that the dimensions of the collar portion 13 and cap 12 may vary depending on the filling machine with which the container is to be used. When varying the dimensions the relative size of the collar portion 13 to the cap 12 must be maintained in order to provide the friction fit between the two and thereby maintaining an aseptic environment when required.

CLAIMS:

1. A tamper evident assembly for use with a fluid dispensing container for flowable material, the assembly comprising:

an annular flange for attachment to a container,

a spout projecting upwardly from the flange and having an upper end and a lower end, the spout defining a dispensing passage therethrough and having at least one external annular rib; and

a cap having a top with an external depending skirt and a tamper indicating band releasably attached to the skirt, the cap further including an internal skirt depending from the top and spaced inwardly from the external skirt and operable to be received within the fluid passage to provide a seal between the cap and the spout;

the assembly having a first position in which the cap is received on the upper end of the spout with the tamper indicating band abutting the external rib and the internal skirt being received within the passage and providing a seal therebetween, and a second position in which the cap is located on the lower end of the spout with the external rib located between the external skirt and the tamper indicating band and the upper end of the spout located adjacent the top of the cap, the internal skirt being received within the passage and providing a seal therebetween.

2. A tamper evident assembly for use with a fluid dispensing container for flowable material, the assembly comprising:

an annular flange for attachment to a container,

a spout projecting upwardly from the flange and having an upper end and a lower end, the spout defining a dispensing passage therethrough; and

a cap sized to be received on the spout and having a tamper indicating band releasably attached thereto,

the assembly having a first position in which the cap and the tamper indicating band are received on the upper end of the spout and a seal is provided between the cap and the spout and from which when the cap is removed the tamper indicating band remains attached to the cap, and a second position in which the cap and the tamper indicating band are located adjacent the lower end of the spout and a seal is provided between the cap and the spout and from which when the cap is removed the tamper indicating band detaches from the cap and remains on the spout, thereby providing evidence that the assembly has been tampered with.

ABSTRACT

The present invention further provides a tamper evident assembly for use with a fluid dispensing container for flowable material, comprising an annular flange for attachment to a container, a spout projecting upwardly from the flange and having an upper end and a lower end, the spout defining a dispensing passage therethrough and a cap sized to be received on the spout and having a tamper indicating band releasably attached thereto. The assembly has a first position in which the cap and the tamper indicating band are received on the upper end of the spout and a seal is provided between the cap and the spout and from which when the cap is removed the tamper indicating band remains attached to the cap, and a second position in which the cap and the tamper indicating band are located adjacent the lower end of the spout and a seal is provided between the cap and the spout and from which when the cap is removed the tamper indicating band detaches from the cap and remains on the spout, thereby providing evidence that the assembly has been tampered with.

APPLICATION DATA SHEET

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Formal Drawings:
Application Type: Provisional
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Registration Number One: 50,157. Thomas R. Mancini

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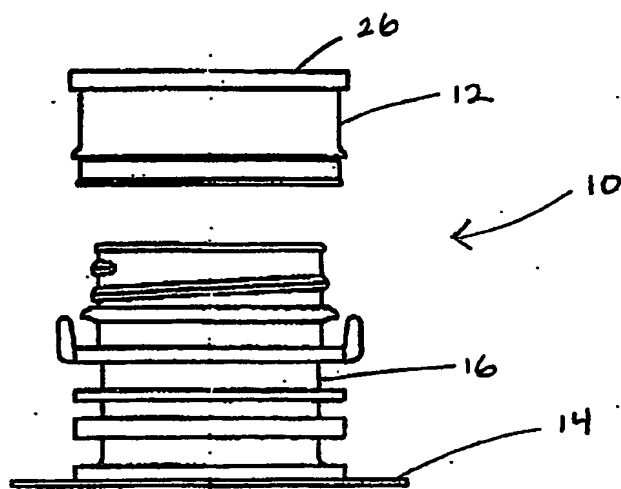
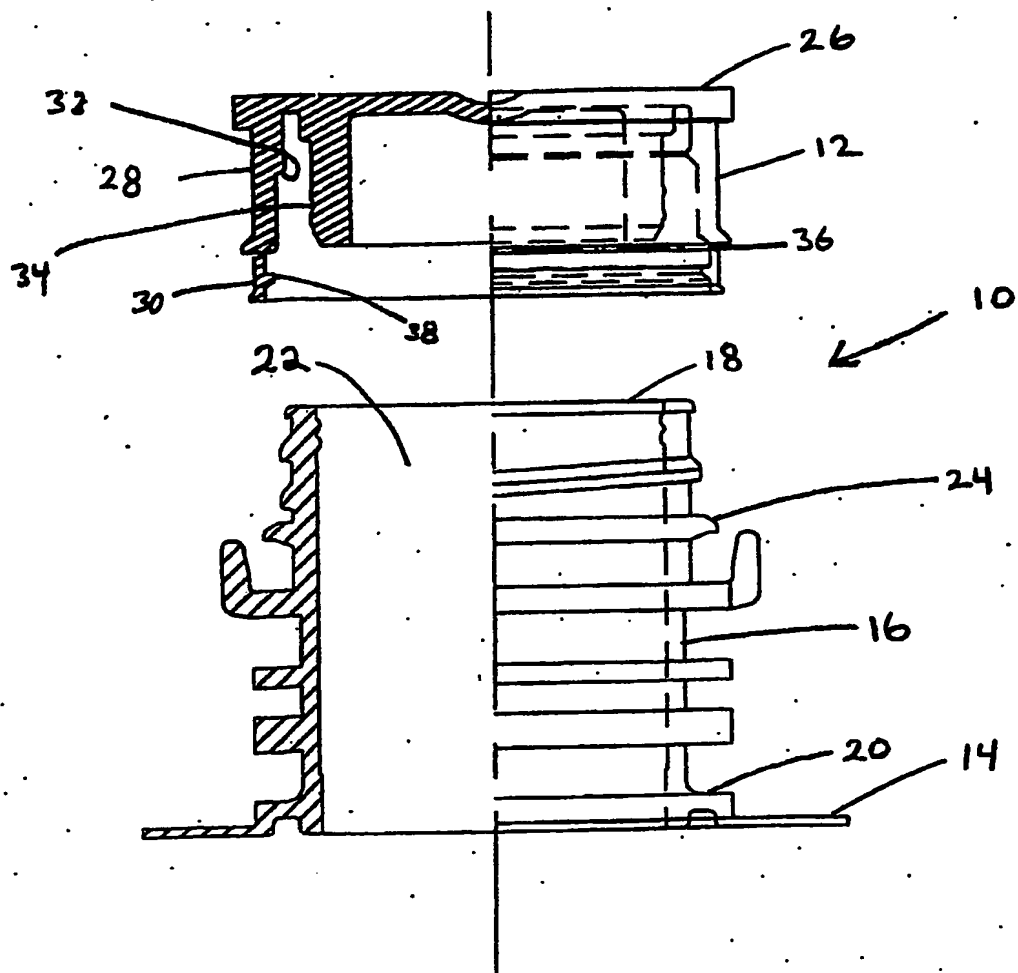


Figure 1A

Figure 1B



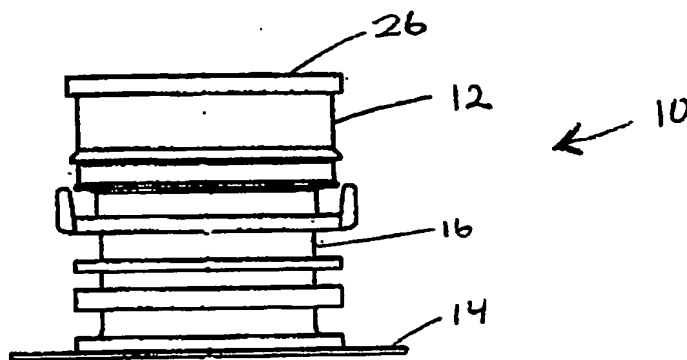


Figure 2A

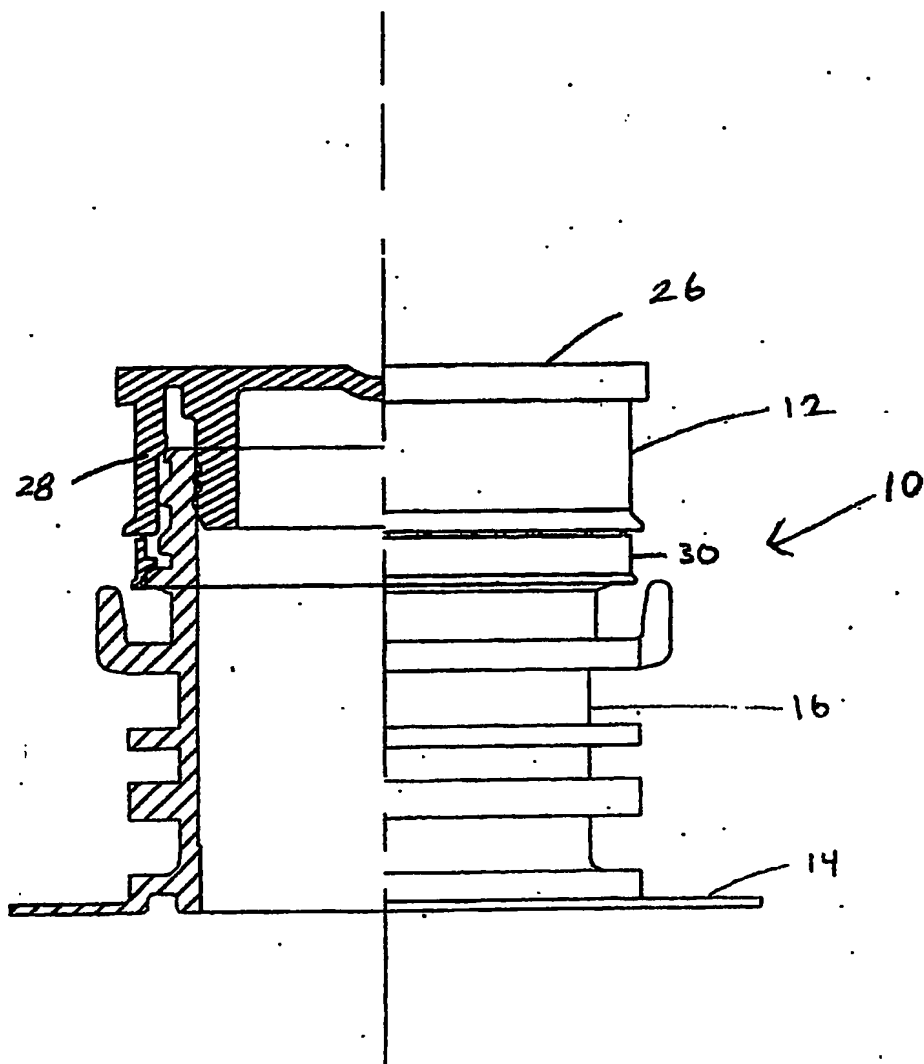


Figure 2B

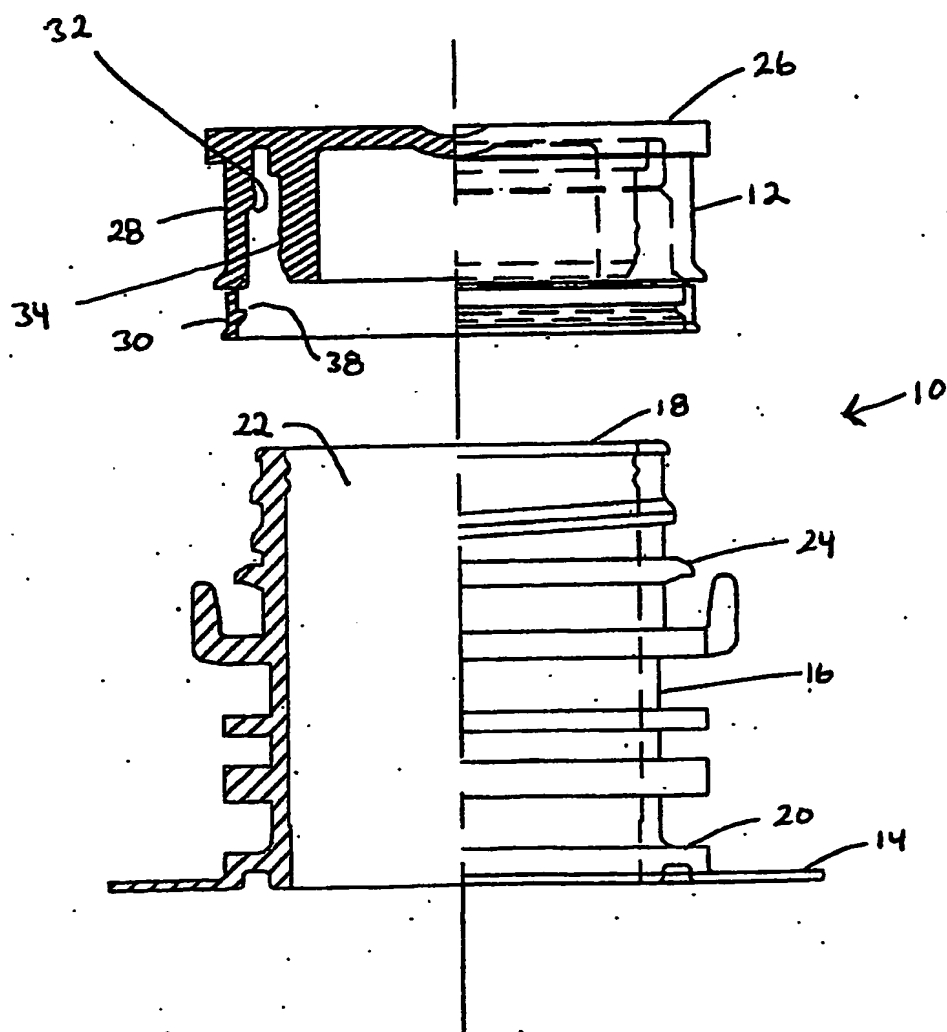


Figure 3

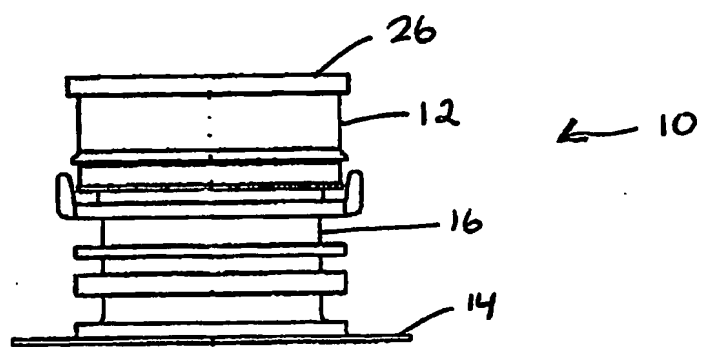


Figure 4A

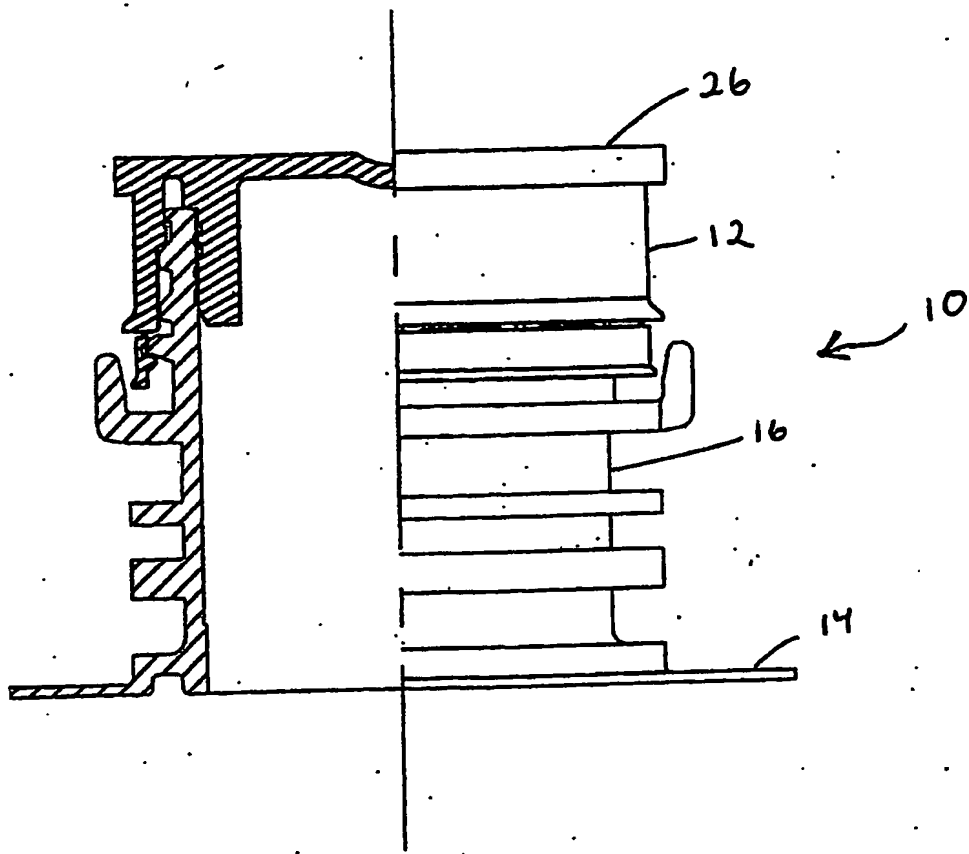


Figure 4B

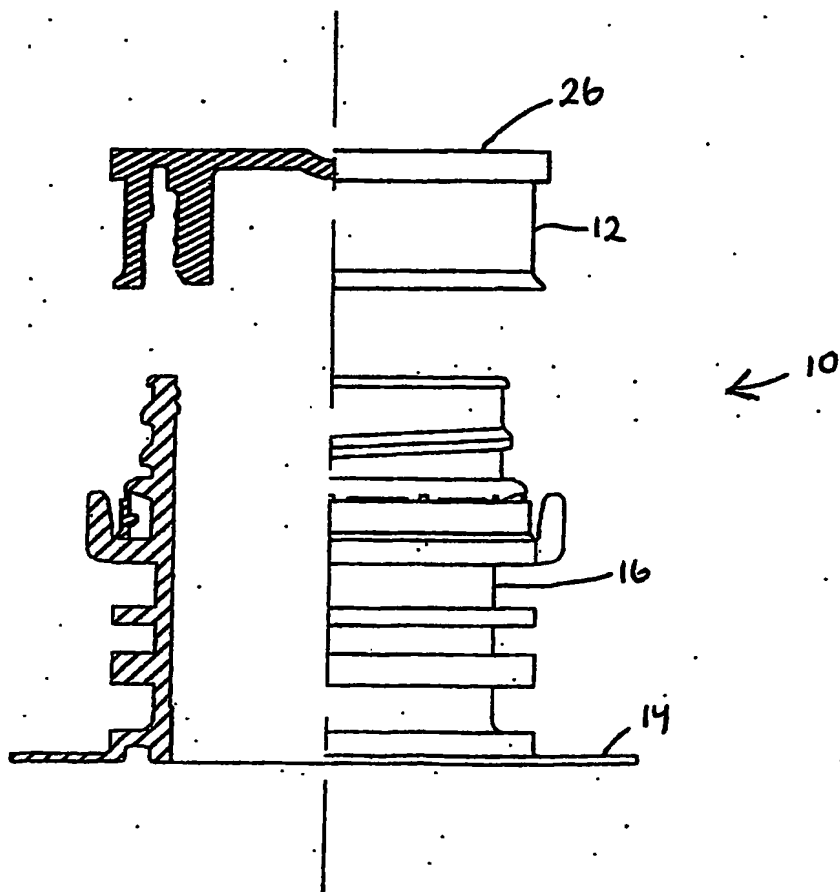


Figure 5

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